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AUTHOR Holden, E. Wayne; And Others
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ABSTRACT

Three aversive conditioning programs were conducted to deal with self-injurious behavior at a residential facility for autistic, brain damaged and retarded children and adolescents. In study 1, mild electric shock paired with a neutral stimulus was moderately effective in decreasing lip biting and head striking in an autistic 15-year-old. Case 2 featured a treatment program in which an array of mild to moderate response contingent aversive consequences were used interchangeably to decrease head banging and head striking in an autistic 9-year-old. In study 3, the hand biting of a 6-year-old with severe developmental problems was significantly reduced by a mild aversive stimulus. Explanations for differences in rate of improvement and maintenance of change were offered. In all three cases, quicker suppression and maintenance of change across time were related to the ability to learn alternative responses and changes in the topography of self-injurious behavior. (CL)

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The Treatment of Self-Injurious Behavior in Profoundly Retarded Autistic Children

E. Wayne Holden, Mervyn K. Wagner and Anita F. Gotwals

University of South Carolina

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Runnung head: SELF-INJURIOUS BEHAVIOR

Paper presented at the 30th annual meeting of the Southeastern Psychological Association, New Orleans, March, 1984.

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The Treatment of Self-Injurious Behavior in Profoundly Retarded Autistic Children

Self-injurious behaviors (SIBS) are a prevalent problem within retarded and psychotic populations. The topography of SIBS varies across psychopathologies and individual cases, but the end result is constant: self-inflicted physical injury. A significant amount of research on clinical intervention has been generated by the physical injury resulting from SIBS responses (Edelson, Taubman & Lovaas, 1983). In pediatric populations, the SIBS responses of developmentally disabled children have received considerable empirical attention. Valid and reliable information regarding assessment strategies and effective intervention, however, have only recently become available.

The behavioral perspective has long been recognized as the most effective modality for assessing and treating developmentally disabled children (Ross & Pelham, 1981). It is no surprise that the most fruitful approach to SIBS responses within this population has been behavioral in orientation. Recent reviews of the SIBS literature have provided strategies for guiding behavioral assessment and intervention. Carr (1977) presented a framework for determining the etiology of SIBS and analyzing environmental contingencies maintaining SIBS responses. He asserted that positive reinforcement, negative reinforcement and self-stimulation are consequences which maintain SIBS responses in individual cases. A recent AABT Task Force Report (Favell et al, 1982) which reviewed

the literature on the treatment of SIBS responses made recommendations for the use of contingency management procedures within treatment settings. One procedure that was recommended for use with cases of severe, intractable SIBS responses was the application of response contingent aversive consequences.

To illustrate issues pertinent to clinical intervention, this paper presents data on the behavioral treatment of SIBS in profoundly retarded autistic children and adolescents. In each of the cases discussed aversive conditioning was used as the primary treatment method.

Method and Results

Three treatment programs were conducted at a residential facility for autistic, brain damaged and retarded children and adolescents. All treatments involved the use of aversive conditioning. Baseline data was not collected due to the fact that interventions were conducted within a clinical setting. Staff (e.g., special education teachers and paraprofessional residential therapists) collected data on the frequency of SIBS responses and administered the aversive consequences. All treatment programs were developed and monitored by a licensed clinical psychologist, a graduate student assistant and administrative staff. In each case, SIBS responses had been resistant to other less restrictive forms of behavioral intervention. Parental consent was obtained prior to the beginning of the treatment programs. Treatment programs were conducted during the 1982-1983 school year. Follow up data on the

frequency of SIBS responses was collected during a two week period in February of 1984.

Case One

Case one was conducted with a fifteen year old male who had recieved the diagnosis of early infantile autism as a result of untreatable neonatal phenylketonuria. He functioned intellectually within the profoundly retarded range of mental retardation and and displayed severe deficits in all areas of adaptive behavior. He had been confined to a residential treatment facility for eight years. During his residential placement, he had continually displayed a chronic pattern of severe SIBS (e.g., lip bitng and head striking) that proved intractable to all treatment efforts. On several occasions he had received medical attention for physical injury resulting from SIBS responses.

A functional analysis of his SIBS indicated that they were elicited by demands for performance from staff and maintained by negative reinforcement (e.g., escape from or avoidance of task demands). The treatment used paired mild electric shock with a neutral stimulus to create a conditioned punisher for consequating SIBS responses. The neutral stimulus was a completely enclosed football helmet which had been used previously in this case to prevent physical injury. Shock and the football helmet were paired 1:1 for the first six trials. Afterwards, the shock was faded using a variable ratio schedule of presentation. Initially, the ratio was 1:3. At the end of treatment, shock was presented at

an average of once per seven SIBS.

Results of treatment are presented in Figure 1. The procedure proved to be moderately effective across the eighteen week treatment span. SIBS decreased from an average of 14 per day during the first week of treatment to an average of 6 per day during the final week of treatment.

The interim between the termination of treatment and follow up was approximately 13 months. During this time, mild electric shock was used on an intermittent basis to consequate SIBS responses. In addition, placement in a very low demand environment to reduce significantly the antecedents eliciting SIBS responses occurred. At follow up, the topography of SIBS had changed significantly to allow classification of responses into mild (e.g., accompanied by laughter and compliance to task demands) and severe. The rate of severe SIBS during follow up was similar to the rate obtained during the final week of treatment. Mild SIBS were occurring in excess of 50 per day. Shortly after follow up, mild electric shock was eliminated completely from his treatment program and a response costs procedure was implemented to treat severe SIBS. Mild SIBS were placed on extinction.

Case Two

Case two was conducted with a nine year old male who had received the diagnosis of early infantile autism. Specific etiological factors responsible for his condition had not been clearly identified. He was, however, being maintained on an anti-convulsant drug regimen

to control epileptic seizures. His intellectual level was estimated to be within the profoundly retarded range and his social age was estimated to be within the two year old range. He entered residential placement in September of 1982. Prior to placement, he had attended a number of special education programs within the public school system while residing at home. Extremely high rates of self-injurious, self-stimulatory and hyperactive behaviors had prompted recommendations from public school officals for residential placement.

Upon entering residential placement, high rates of severe head banging and head striking were displayed (e.g., in excess of 60 per hour). A functional analysis of these responses indicated that specific antecedents were difficult to identify, but that positive reinforcement in the form of positive or negative attention from adults was a salient maintaining consequence. During the first four months of placement, treatment programs employing a single aversive consequence were used. The frequency and severity of SIBS reduced significantly during this period. Because the child habituated to programs employing a single aversive consequence, a treatment program was constructed in which an array of mild to moderate response contingent aversive consequences were used interchangeably. One consequence was chosen from the following list and applied after each SIB: swinging, shaking, running back and forth, and the application of a fine mist water spray directed towards the face.

Figure 2 illustrates the results of the new treatment program which was instituted at the beginning of the fourth month of residential placement. As can be seen from the figure, SIBS occurred at relatively high rates during the first six weeks of the program. The severity of SIBS had decreased sufficiently by the seventh week to allow implementation of a new treatment component. A positive procedure consisting of shaping mild SIBS into incompatible responses (e.g., gesturing for his teacher's attention) was added. Whenever a mild SIB occurred, prompts were given for the child to gesture for his teacher's attention. Reinforcement was provided for gestural responses and independent gesturing was shaped across the remainder of the program. The frequency of SIBS decreased significantly as a result of the new treatment component. This was partially due to the fact that severe SIBS were the only responses charted from the seventh to the eighteenth weeks. A significant increase was noted, however, in gestures for attention and the frequency of communication through rudimentary sign language.

The interim between termination of treatment and follow up was approximately nine months. During this time, marked improvement occurred in all aspects of this child's condition. At follow up, the daily rate of SIBS was slightly higher than end of treatment levels. It should be noted, however, that both mild and severe SIBS were included within the follow up average daily index. At follow up response contingent aversive consequences were not being

used to treat SIBS responses. All SIBS were being placed on extinction.

Case Three

Case three was conducted with a six year old female who had displayed a long history of severe developmental problems. She was non-verbal, epileptic and had a metabolic disorder necessitating restriction to a purine free diet. In addition, she was being maintained on an anti-convulsant drug regimen. She had received the diagnosis of early infantile autism and had been confined to residential placement since the age of three. Her mental age was estimated to be at the eleventh month old level placing her intellectual level within the profoundly retarded range. Her social age estimate was congruent with her low level of intellectual functioning.

She had displayed several different SIBS responses during her life span (e.g., head banging, head striking and hand biting). At the time of treatment, the only SIB within her behavioral repertoire was hand biting. A functional analysis of this response indicated that frustration was an antecedent that often elicited hand biting. In many instances, however, no reliable environmental antecedents could be identified for the response. Extensive observations suggested that self-stimulation was the most plausible reinforcer maintaining hand biting. A treatment program was developed in which a mild aversive stimulus was used to consequate hand biting responses. This consequence was applied following

each hand bite and consisted of a staff member forcibly pulling the child's hand out of her mouth while saying "no" loudly.

The results of treatment are depicted in Figure 3. A significant reduction in hand biting occurred across the eighteen week treatment span. Hand bites occurred at an average of 14.6 per day during the first week of treatment. During the final week of treatment, the average number of hand bites per day had been reduced to .14.

The interim between termination of treatment and follow up was approximately nine months. During this period, the treatment program outlined previously was continued. Follow up data, however, indicated that the daily frequency of SIBS had returned to pre-treatment levels. It appeared that the child had habituated to the mild aversive consequence used in the treatment program. After follow up, a treatment program was constructed in which an array of moderately aversive stimuli would be applied following SIBS responses. The new treatment program had not been implemented at the time of compilation of this paper.

Discussion

A reduction in the frequency of SIBS was obtained in all three cases as a result of the treatment conducted. Although differential responses to treatment were obtained, aversive conditioning procedures were effective across all cases examined attesting to the efficacy of these procedures in the treatment of SIBS responses.

Differences in rate of improvement and maintenance of

change were related to several factors. In case one, severe SIBS were suppressed slowly. A change in topography obtained through stimulus control procedures applied after treatment had a significant impact on the maintenance of low rates of severe SIBS at follow up. In cases two and three, quicker suppression of SIBS responses was obtained. In case two, differential reinforcement of alternative incompatible behavior and the acquisition of other adaptive responses across time appeared to be related to maintenance of change. In case three, maintenance of change was not obtained due to habituation to a mild aversive consequence.

Across all three cases, quicker suppression and maintenance of change across time were related to the ability to learn alternative responses and changes in the topography of SIBS. Slower suppression and reoccurence of SIBS were related to more severe responses and habituation to aversive stimulation.

The case studies included in this paper indicate that SIBS in profoundly retarded autistic children are multi-faceted responses maintained by different contingencies specific to individual cases. Detailed behavioral assessments utilizing Carr's (1977) framework need to be conducted to identify variables maintaining SIBS responses. An array of behavioral treatment methods are available for ameliorating SIBS responses in developmentally disabled children (Favell et al, 1982). Future research examining aversive treatment procedures needs to address factors accounting for differences in response

suppression rates and maintenance of change. The combination of response contingent aversive consequences with other treatment procedures appears to be an area worthy of further investigation.

References

Carr, E. G. (1977). The motivation of self-injurious behavior: A review of some hypotheses. Psychological Bulletin, 84, 800-816.

Edelson, S. M., Taubman, M. T. & Lovaas, O. I. (1983). Some social contexts of self-destructive behavior. Journal of Abnormal Child Psychology, 11, 299-312.

Favell, J. E. et al. (1982). The treatment of self-injurious behavior. Behavior Therapy, 13, 529-554.

Ross, A. O. & Pelham, W. E. (1981). Child psychopathology. Annual Review of Psychology, 32, 243-278.

Figure Caption

Figure 1. Data for Case One.

Figure 1

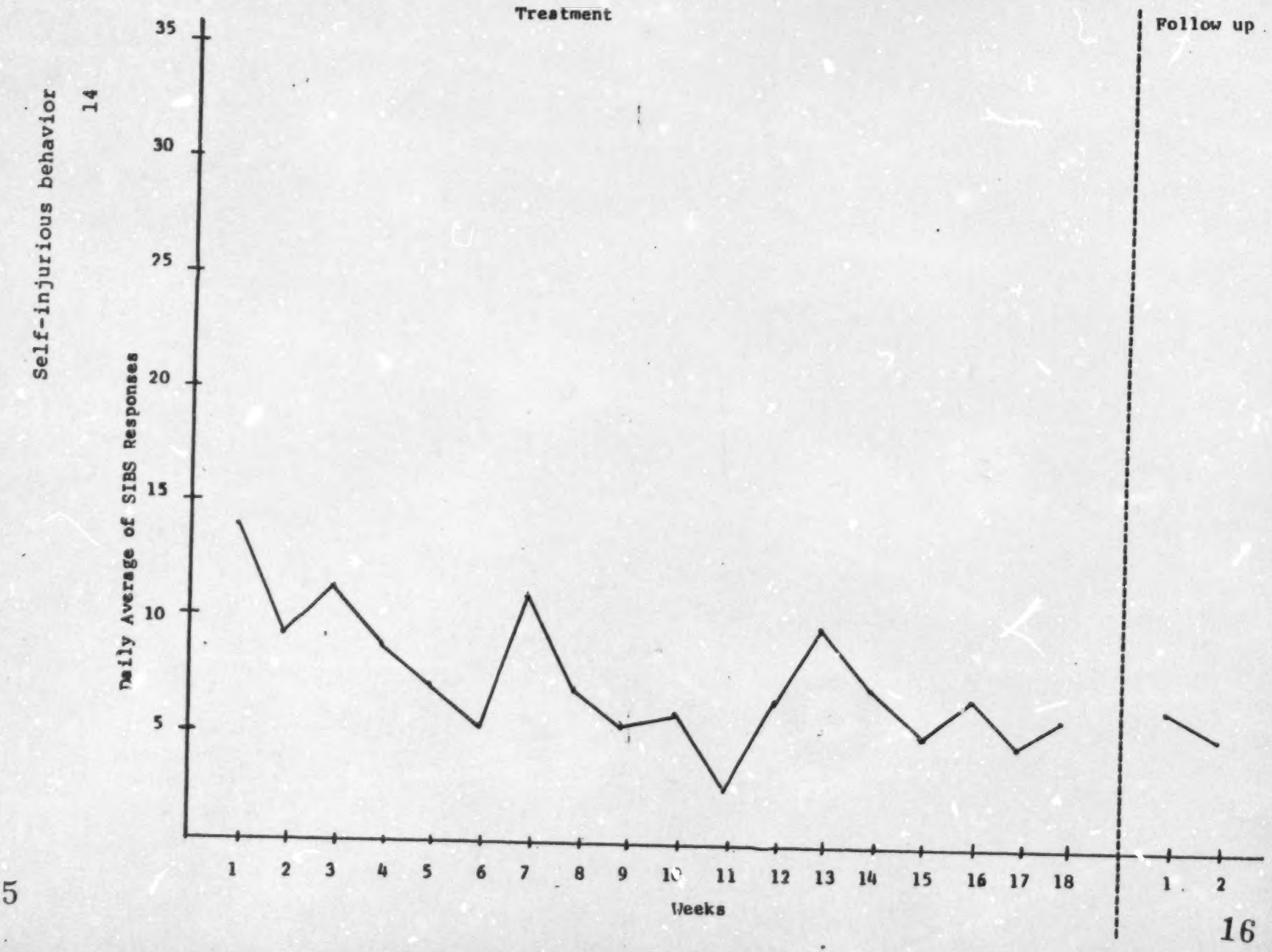

Treatment
Follow up
Self-injurious behavior
14
Daily Average of SIBS Responses
35
30
25
20
15
10
5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
1 2
Weeks

Figure Caption

Figure 2. Data for Case Two.

Figure 2

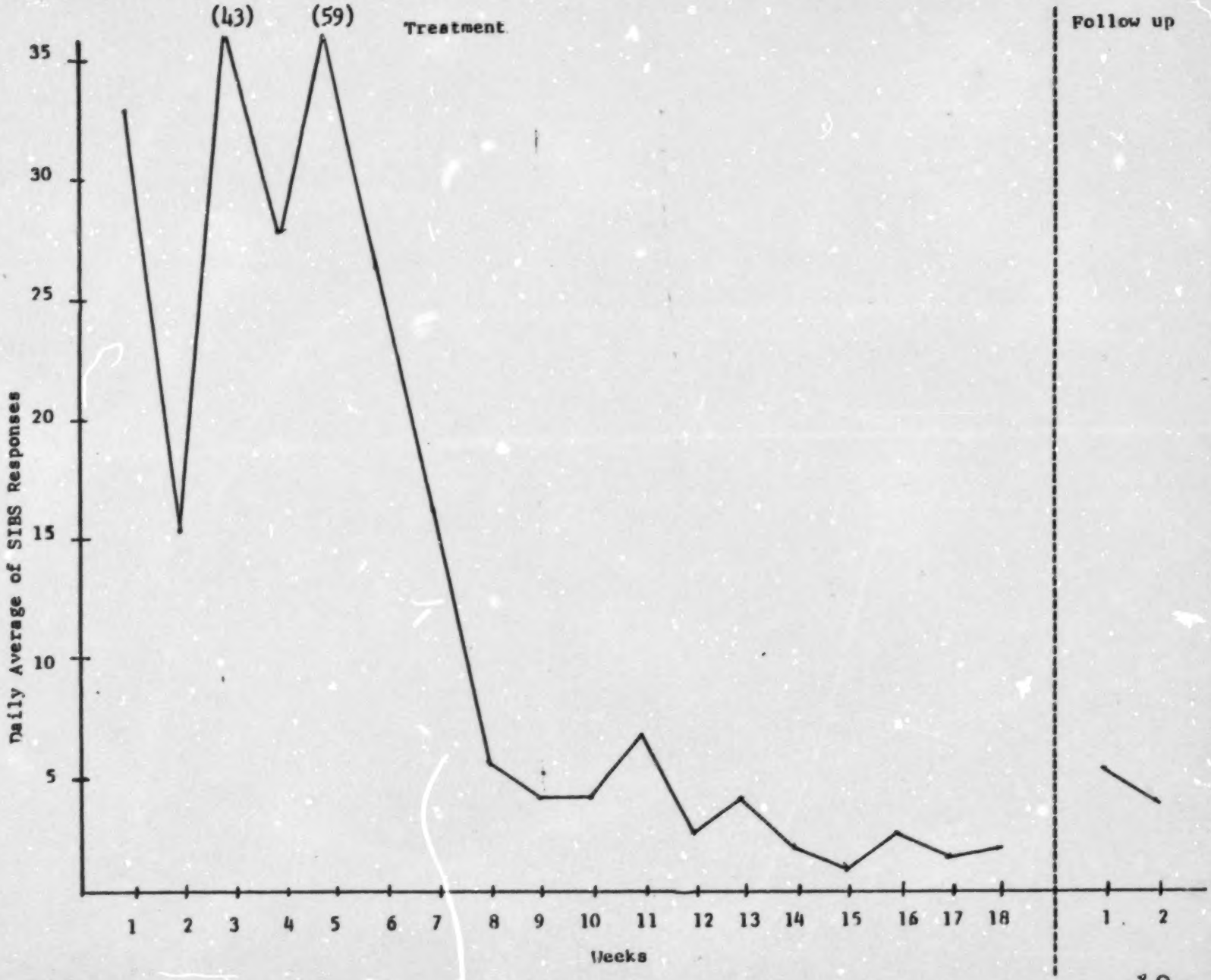
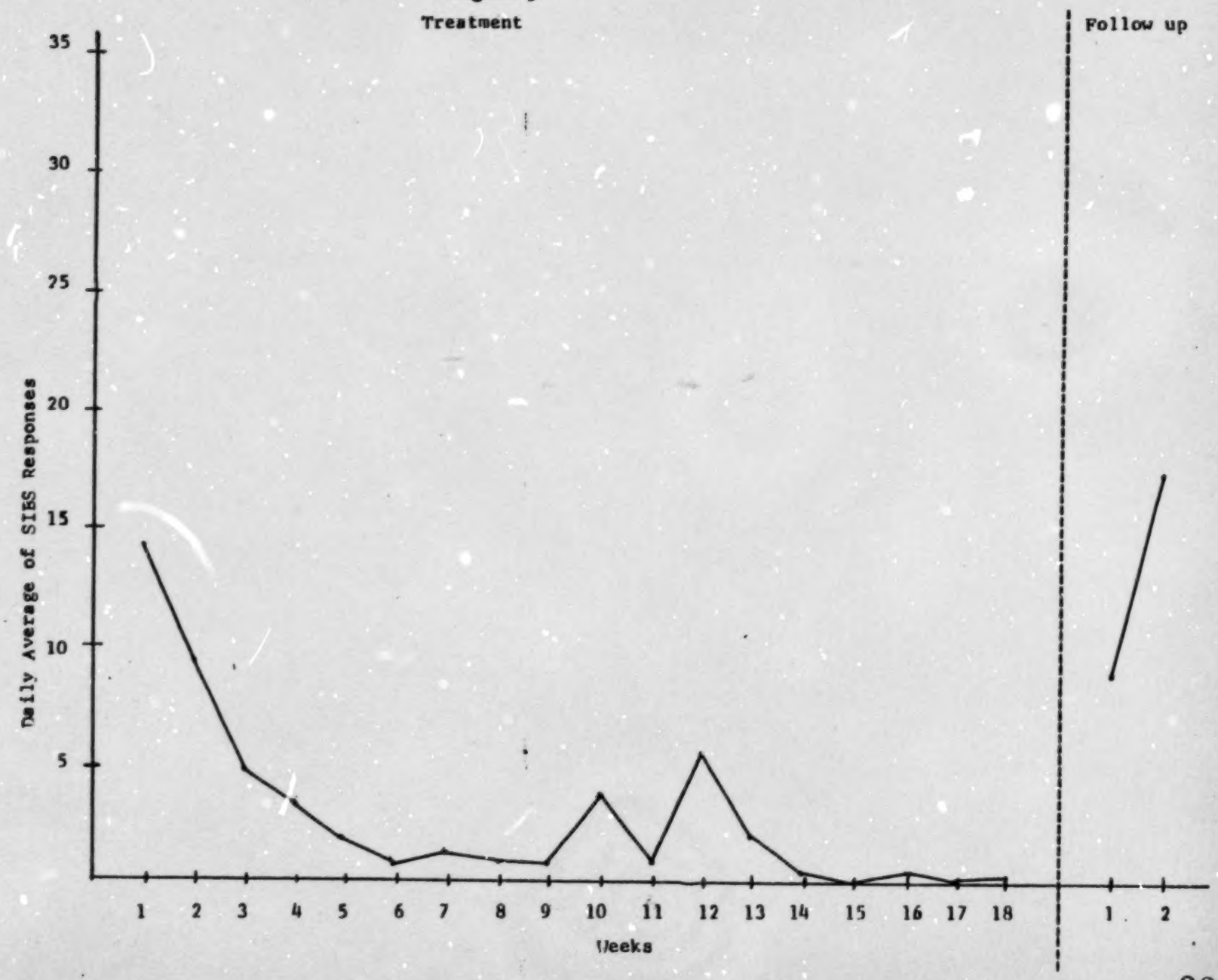

Self-injurious behavior
Daily Average of SIBS Responses
(43)
(59)
Treatment
Follow up
35
30
25
20
15
10
5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
1 2
Weeks

Figure Caption

Figure 3. Data for Case Three.

Figure 3


Treatment
Follow up
Daily Average of SIBS Responses
35
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10
5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
1 2
Weeks